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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/511,529

02/07/2005

Meinhard Gusik

05587-00371-US

4568

23416 7590 07/28/2008  
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EXAMINER

HAUTH, GALEN H

ART UNIT

PAPER NUMBER

4111

MAIL DATE

DELIVERY MODE

07/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/511,529	<b>Applicant(s)</b> GUSIK ET AL.	
	<b>Examiner</b> GALEN HAUTH	<b>Art Unit</b> 4111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/15/2004, 11/01/2004, 04/18/2005</u> .                      | 6) <input type="checkbox"/> Other: ____.                          |



## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gusik et al. (PN 5449484) in view of Van Laak et al. (PN 5656686) and Heathe (PN 4770539).

a. With regards to claim 1, Gusik teaches a method for producing granule (pellet) extrudate from pulverulent ultra-high molecular weight polyethylene using a screw extruder (abstract). The screw comprises a feed zone, a transition zone, and a metering zone through which the polyethylene passes (col 2 ln 10-16). The feed zone is a two-flight (double flighted) screw part with a transport zone that is 4 to 8 times the screw diameter in length and a decompression zone that is 5 to 18 times the screw diameter in length (col 2 ln 50-60). Gusik teaches with

sufficient specificity the endpoint of the working range for the decompression zone of 5 times the screw diameter in length. Gusik teaches that the flight depth is 2.5 to 6 mm (col 2 ln 64-66). This flight depth range overlaps with sufficient specificity the claimed range for the flight depth of 4-10 mm, therefore the overlapping range is anticipated by Gusik. In any event, it would be obvious to one of ordinary skill to operate with a flight depth at any point within the workable range suggested by Gusik which includes 4 to 6 mm of depth. Gusik teaches that the transition section comprises a shearing element with a length of 1 to 2.5 times the diameter of the screw (col 3 ln 1-7). Gusik teaches that the metering section comprises a mixing zone whose length is 1 to 4 times the screw diameter (col 3 ln 11-21) and then the extrudate is passed through a die (col 3 ln 29-31). Gusik teaches that the extrudate is formed into strands and palletized by conventional means (col 4 ln 44-55). Gusik does not teach a) including filler in the material **and** b) the use of a barrier type screw.

b. Van Laak teaches a composition for polyethylene comprising 1 to 10% by polymer weight carbon black (abstract) is made using ultra-high molecular weight polyethylene in a screw extrusion mixing process (col 4 ln 16-21). Van Laak teaches that other fillers are present in the mixture such as glass fibers (col 5 ln 15-25, glass fibers are reinforcement). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the fillers taught by Van Laak in the mixing process of Gusik, because it produces polyethylene molding compositions which, despite antistatic treatment with

carbon black, have high toughness and wear resistance and can be processed by thermal methods (col 2 ln 20-25 of Van Laak) and Van Laak acknowledges the pelletization of the mixture (col 5 ln 8-14).

c. Heathe teaches a barrier screw having improved solids conveying capability (abstract). Heathe teaches that the screw design includes a feed zone, transition zone, and metering zone (col 2 ln 35) similar to Gusik. Heathe teaches that the transition zone includes a helical barrier flight which serves to separate the melt channel the solids channel (col 2 ln 62-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a barrier type screw design at least in the transition zone as taught by Heathe in the extruder taught by Gusik, because the Heathe design significantly reduces the possibility of overheating the molten plastic (col 3 ln 12-14), and is amenable to forming a well-mixed substantially homogeneous molten plastic material which is less likely to brake the shank of the extruder due to deep melt channels (col 3 ln 39-42).

d. With regards to claim 2, Gusik teaches the use of ultra-high molecular weight polyethylene (abstract).

e. With regards to claims 3 and 6, Van Laak teaches using 1 to 10% by weight of the polymer carbon black (abstract) and an additional 0.05 to 5% by weight of the polymer and carbon black other additives (col 5 ln 15-17).

f. With regards to claims 4, 5, 7, and 8, Van Laak teaches using carbon black (abstract).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The term "pulverulent to small particle" in claim 1 is a relative term which renders the claim indefinite. The term "pulverulent to small particle" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The phrase "pulverulent to small particle" implies that there is a range of acceptable particle size for the raw material of the extruder; however, there is no clear size defining this range but rather terms of degree such as small particle and pulverulent. It is unclear what size particles lay within and outside of this range. Additionally, the limitation "(f) comminuting ... per se, which comprises using a screw ..." is confusing because the limitation following "which" appears to modify the process of comminuting. However, in reading this limitation in light of the specification, it would appear that the above limitation is referring back to the extruder recited in the preamble.

***Claim Objections***

6. Claims 1-8 are objected to because of the following informalities: The phrase "in a manner known per se" be removed.

Appropriate correction is required.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GALEN HAUTH whose telephone number is (571)270-5516. The examiner can normally be reached on Monday to Thursday 7:30am-5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Yao can be reached on (571)272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GHH/

/Sam Chuan C. Yao/  
Supervisory Patent Examiner, Art Unit 4111